DOCUMENT RESUME

ED 253 411 SE 045 375

AUTHOR Crawford, Hollis D.
TITLE Missouri Conservation Frontiers Program Guide. A Conservation Action Program of the Missouri Department of Conservation.
INSTITUTION Missouri State Dept. of Conservation, Jefferson City. Conservation Education Unit.
PUB DATE [84]
NOTE 18p.; For a related document, see SE 045 376.
AVAILABLE FROM Education Section, Missouri Dept. of Conservation, P.O. Box 180, Jefferson City, MO 65102.
PUB TYPE Reports - Descriptive (141) -- Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Conservation (Environment); *Conservation Education; Elementary Secondary Education; *Learning Activities; *Natural Resources; Program Descriptions; Science Education; *Student Projects
IDENTIFIERS *Missouri

ABSTRACT

"Missouri Conservation Frontiers" is an activity-oriented program dealing with conservation of natural resources. The program, designed for youth between the ages of 8 and 16, provides a system of activities and awards which can be adapted in any classroom, youth group, or organization in Missouri. In addition, teachers may involve their students in the program as the award component of the "Learning with Otis" elementary school program. This guide includes: (1) a description of the program; (2) instructions for beginning the program; (3) a description of the four levels for achievement in the program (and the requirements for attaining each level); and (4) the schedule of merit points. This schedule (which makes up the major portion of the guide) is a list of 73 self-improvement and activity projects which participants may complete. Although most activities are designed to be completed individually by the participant, several require some assistance from parents, leaders, teachers, or other individuals. A sample pledge card which students sign to enroll in the program is included. (JN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED253411

Missouri Conservation Frontiers

Program Guide

Developed by: Conservation Education Unit
Written by: Hollis D. Crawford
Illustrated by: David Besenger

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Al Palladino
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

A Conservation Action Program
of the
Missouri Department of Conservation

SE 045 375

Acknowledgements

The development of *Missouri Conservation Frontiers* involved the contributions of many individuals. We are indebted to Director Larry R. Gale and Assistant Director Allen Brohn for their support and encouragement. We are also indebted to Superintendent of Education Donald K. Heard and Assistant Superintendent of Conservation Education Al Palladino for their guidance and assistance.

Very special thanks are extended to Hollis D. Crawford, conservation education consultant, who chaired the Conservation Education Unit's Youth Program Committee. Hollis' efforts and leadership guided committee deliberations from program conception to finished product.

Thanks also to Conservtion Education Consultants Larry B. Behrens, Rodney J. Green and David B. Knisley. Larry, Rodney and David served on the youth program committee throughout the duration of development.

We appreciate the artistic talents of David Besenger and his efforts on all program illustrations.

We hope that *Missouri Conservation Frontiers* will provide valuable assistance to teachers, youth leaders and parents while sparking a lifetime interest in and commitment to resource conservation among Missouri youngsters, ages 8 to 80.

Missouri Conservation Frontiers

An Exciting Program of the
Missouri Department of Conservation

Missouri Conservation Frontiers is an activity-oriented program dealing with conservation of our natural resources. Since it is part of the education effort of the Missouri Department of Conservation, most projects deal with renewable resources—wildlife, fish and forests.

The program is designed primarily for youth between the ages of 8 and 16. Initial enrollment should begin about the third grade; most youngsters should complete the program by the upper Junior High level. However, this is *not* a program just for young people. Citizens of all ages are urged to participate, learn, enjoy and benefit by becoming involved in this conservation effort.

Missouri Conservation Frontiers provides a system of activities and awards which can be adapted and utilized in any classroom, youth group or organization in the state. Participants can advance from Pioneer to Pathfinder, Trailblazer and, ultimately, Missouri Conservationist by completing specific activities. The program is designed to reward completion of conservation merit badge activities through local scout troops and 4-H club conservation projects. Also, teachers may involve their students in *Frontiers* as the award component of the Department's *Learning With Otis* elementary school program. In addition, parents may direct their own children's participation without youth organization affiliation.

The loss of wildlife habitat and diminishing forest acreage are serious problems confronting Missouri. Therefore, program emphasis will address these issues. The activities are also designed to cover a broad spectrum of conservation topics and practices to provide all citizens of Missouri the opportunity to develop a greater appreciation of our natural resources. With this appreciation should come a better understanding of the economic, aesthetic and recreational benefits of our natural environment.The activities are designed to be of educational value to the participant while providing the opportunity to become personally involved by doing constructive projects concerning our natural resources. It is hoped that participation in *Missouri Conservation Frontiers* will create conservation-conscious youngsters while developing a foundation for environmentally responsible adults.

To lessen the burden for the teacher, leader or parent, all participants will be required to keep their own records in a *Missouri Conservation Frontiers* notebook. All projects will be recorded in the program guide and approved by the leader before awards are presented.

Activities involving written reports or essays should be inserted in the participant's notebook upon completion and approval by the adult leader. (Note: The length of written reports or essays shall be determined by the leader based on the age or grade level of the participant.)

Awards*

Trailblazer Medal

Pathfinder Patch

Pioneer Button

Missouri Conservationist Plaque

*Samples shown for illustration purposes only.

Beginning the Program

Teachers and other leaders should become familiar with the general format of the *Missouri Conservation Frontiers* program before presenting it to the participants under their supervision. They will thus be better prepared to point out the possibilities which the program offers and to emphasize the importance of conserving our natural heritage of soil, water, forests and wildlife. Members of the staff of the Education Section and other personnel of the Missouri Department of Conservation are available for group presentations to explain the program and to offer assistance as the program progresses.

Adult leaders who decide to participate in *Missouri Conservation Frontiers* should complete and return the enrollment form furnished with this guide to obtain the Conservation Pioneer materials. Participants will be ready to begin work on the various activities as soon as they receive the Pioneer packet and sign their pledge cards. Although it may be possible to advance two ranks in one year, a more desirable schedule would be to complete only one level every 1-2 years. As a participant fulfills the requirements for a rank advancement award, the leader should complete the award request sheet and submit it to the Missouri Department of Conservation, Conservation Education Unit, P.O. Box 180, Jefferson City, Missouri 65102.

Levels of Achievement in Missouri Conservation Frontiers

Conservation Pioneer

Participants enroll in the *Missouri Conservation Frontiers* by signing their pledge card. After receiving the Pioncer packet, work toward the next level may begin.

Conservation Pathfinder

The requirements for Pathfinder are to complete required activity number one (Conservation Frontiers Notebook) and earn a total of 3,000 points. A minimum of three (S.I.) Self-Improvement and three (A) Activity projects must be completed.

Conservation Trailblazer

A total of 15,000 points (including the 3,000 already earned) are required to receive the Trailblazer award. A minimum of six (S.I.) Self-Improvement and six (A) Activity projects *not previously accomplished* must be completed to achieve this rank.

Missouri Conservationist

The Missouri Conservationist award is the highest level of achievement and requires a total of 30,000 approved points. These points may include the 15,000 already earned. Since this award represents an extraordinary effort, a special awards ceremony is suggested.

Schedule of Merit Points

The Schedule of Merit Points is a list of all activities approved for advancement through the various levels of the *Missouri Conservation Frontiers* program. The activities may be repeated *only* when considered advisable by the leader to expand the project. Most of the activities are designed to be accomplished individually by the participant. However, some assistance from parents, leaders, teachers and Missouri Department of Conservation personnel may occasionally be required for more difficult activities.

Number	Activity	Points Possible	Points Earned	Date Completed	Leader Approval
1. S.I.—	(Required) Conservation Frontiers Notebook. This is the only required activity and is necessary to record the progress and points received. This notebook may either be purchased or made and should be of standard 8½" x 11" size capable of having pages added as needed. The leaders will not keep records as each participant accepts that responsibility and enters work and points earned in his or her own book. Each participant will receive a program guide that must become a part of the notebook to be used by the leader to approve the completed activities (leaders should indicate activity approval by initialing the appropriate "Leader Approval" blank). **All activities** (including required maps, charts, reports, etc.) will be recorded in the notebook and made available for approval by leaders and possible examination by Missouri Department of Conservation, Education Section personnel.	100	____	_____	_____
2. S.I.—	The Department's *Learning With Otis* Program Points for each activity	50	____	_____	_____

Points earned in each topic each year.

Topic Area	**Grade:**	**3**	**4**	**5**	**6**			
Ecology		____	____	____	____	____	_____	_____
Geology		____	____	____	____	____	_____	_____
Soil Relationships		____	____	____	____	____	_____	_____
Land Use		____	____	____	____	____	_____	_____
Conservation Ethics		____	____	____	____	____	_____	_____
Wildlife		____	____	____	____	____	_____	_____
Plants		____	____	____	____	____	_____	_____
Water and Aquatic Life		____	____	____	____	____	_____	_____

Note: Additional space may be required to record total points if participating several years during elementary school.

	Points Possible	Points Earned	Date Completed	Leader Approval
In the following identification activities, the plant and animal species must be identified **in the field.** Identification only from pictures does **not** meet the requirements for these activities. The information required in each activity may be reported orally to the leader by the participant. However, this information should be included in the participant's notebook.				
3. S.I.— Identify 15 Missouri trees. For each tree state its principle uses to man and wildlife	200	___	_____	_____
Each additional tree (maximum 50 trees)	10	___	_____	_____
4. S.I.— Identify 15 Missouri wildflowers, vines and shrubs and state their principle uses to man and wildlife	200	___	_____	_____
Each additional plant (maximum 50 plants)	10	___	_____	_____
5. S.I.— Identify 10 Missouri aquatic plants and state their principle uses to man and wildlife	200	___	_____	_____
Each additional aquatic plant (maximum 20 plants)	10	___	_____	_____
6. S.I.— Identify 25 common Missouri weeds and state their value to wildlife and the reasons why they are considered weeds	200	___	_____	_____
Each additional weed (maximum 50 weeds)	10	___	_____	_____
7. S.I.— Identify 15 Missouri birds. State status (resident or migratory—game or non-game), and regulations in **Wildlife Code of Missouri** pertaining to each and value to man	200	___	_____	_____
Each additional bird (maximum 75 birds)	10	___	_____	_____
8. S.I.— Identify 10 wild Missouri mammals including their tracks. Tell where each is found, state the hunting or trapping regulations, and value to man	200	___	_____	_____
Each additional mammal (maximum 20 mammals)	10	___	_____	_____

	Points Possible	Points Earned	Date Completed	Leader Approval
9. S.I.— Identify 10 Missouri snakes. State whether venemous or non-venomous, what each prefers to eat, where each prefers to live and value to man	200	___	_____	_____
Each additional snake (maximum 20 snakes)	10	___	_____	_____
10. S.I.— Identify 10 Missouri fishes (5 game and 5 non-game). State the season and creel limits, habitat, importance to man and foods eaten for each	200	___	_____	_____
Each additional fish (maximum 20 fish)	10	___	_____	_____
11. S.I.— Identify 10 Missouri reptiles and amphibians (excluding snakes). State whether each is a reptile or amphibian, where each is found and value to man	200	___	_____	_____
Each additional species (maximum 20 species)	10	___	_____	_____
12. S.I.— Identify 25 Missouri invertebrates from any of the following groups: crayfish, fresh water mussels and insects. State where each is found and whether it is helpful or harmful to man's interest	200	___	_____	_____
Each additional species (maximum 50 species)	10	___	_____	_____
13. S.I.— Identify 10 Missouri agriculture crops. For each crop, state its principle uses to man and wildlife	200	___	_____	_____
Each additional plant crop (maximum 20 plant crops)	10	___	_____	_____
14. S.I.— Start a library of at least five books or pamphlets on conservation. Include a brief report on each in your notebook	200	___	_____	_____
For each additional book or pamphlet reported on and added to the library (maximum 20 publications)	25	___	_____	_____
15. S.I.— Learn the open seasons, daily and possession limits, for all species of Missouri game and fish	200	___	_____	_____

	Points Possible	Points Earned	Date Completed	Leader Approval
16. S.I.— Accompany your leader, or other qualified person, on a nature study field trip (maximum 500 points for each level of achievement)	50	___	_____	_____
17. S.I.— Explore and map a half-mile section of a stream. Record water depth, stream width, relative speed (fast or sluggish), bottom features, plant life, and animals present. Report on how the stream has been altered by man and whether or not these changes were beneficial	500	___	_____	_____
18. S.I.— For each Boy Scout, Girl Scout, Camp Fire or other similar youth organization badge or honor on conservation or nature study received (a maximum of 5 awards approved for each level of achievement)	100	___	_____	_____
19. S.I.— Each year enrolled with successful completion of 4-H Club Outdoorsman, Forestry, Fish Farming or other related conservation projects	100	___	_____	_____
20. S.I.— Successful completion of Junior Naturalist Award program offered by the Missouri Department of Natural Resources	250	___	_____	_____
21. S.I.— Visit a zoo, botanical garden or natural history museum. Study the species of plants and animals native to Missouri and learn the principle uses and items of interest about each. For the first 15 species studied	200	___	_____	_____
Each additional species (maximum 50 species)	10	___	_____	_____
22. S.I.— Write a 500-word essay about the life history and habitats of one bird, one mammal or one fish. This activity may be repeated with only one essay approved each year	100	___	_____	_____

	Points Possible	Points Earned	Date Completed	Leader Approval
23. S.I.—Make a collection of 15 newspaper or magazine articles that relate to conservation or use of our natural resources	200	___	_____	_____
Each additional article (maximum 30 articles)	10	___	_____	_____
24. S.I.—Prepare an essay on the effect of introduced (exotic) wildlife species. State the effect that exotics have had on man, the environment, and native wild species	200	___	_____	_____
25. S.I.—Complete a Missouri Hunter Education program and obtain the Hunter Safety Certification Card	200	___	_____	_____
26. S.I.—Active membership in a conservation club that has regular meetings and performs local conservation projects (for each year's membership)	100	___	_____	_____
27. S.I.—Construct a vegetative map of your neighborhood and list changes that could be made to improve wildlife habitat and/or energy conservation. Note any changes with each season for the year	200	___	_____	_____
28. S.I.—Write a 500-word history of conservation in your neighborhood. State how man's use of the area has affected the air, soil, water, forests, grasslands, wildlife and mineral resources	300	___	_____	_____
29. S.I.—Participate in and complete the Missouri S.P.O.R.T. (Sportsmen Protecting Our Resources Together) Ethics Course	100	___	_____	_____
30. S.I.—Prepare an essay on the necessity of proper habitat for wildlife. Be sure to include a discussion of the changing nature of any habitat and describe the different types	150	___	_____	_____
31. S.I.—Prepare an essay on mankind's food web. Include types of plants and animals used, processing, transportation and sale of food items	150	___	_____	_____

	Points Possible	Points Earned	Date Completed	Leader Approval
32. S.I.— Write a report on the negative aspects of using wildlife species as pets. Describe alternate ways to study wild animals	100	____	_____	_____
33. S.I.— Prepare an essay on predator-prey relationships. Be sure to include the role of the predator in checking populations of prey species and the importance of good habitat for the prey species	150	____	_____	_____
34. S.I.— Prepare an essay or report stating the geologic history of the area in which you live. Be sure to include a discussion of glaciation, soil, streams, erosion, fossils, etc.	150	____	_____	_____
35. S.I.— Prepare an essay about conserving energy in the heating and cooling of homes and businesses. Be sure to include the effects of trees, plants, wind, sun, types of building material and types of fuel used	150	____	_____	_____
36. S.I.— Prepare an essay that states the effects on wildlife caused by man's urban transportation system. Be sure to discuss fuel usage, time spent in transportation systems, and the disturbance factor present with transportation systems. Propose some alternatives	150	____	_____	_____
37. A.— Make a survey and prepare a report that lists and describes the species of wildlife found in an urban area. Describe why the urban habitat favors some types of wildlife and how they have adapted to man's ways	200	____	_____	_____
38. A.— Make a survey of a farm at least 80 acres in size to determine its wildlife habitat possibilities. Draw a map showing creeks, ponds, timber, fields, nesting areas, etc. and describe how good farming practices and conservation could produce better crops including wildlife	300	____	_____	_____

		Points Possible	Points Earned	Date Completed	Leader Approval
39. A.—	Give a talk to a school, political, civic or planning group about one of the following topics. Each talk (maximum 500 points approved for each level of achievement).....	100	___	_____	_____
	How animals get ready for winter				
	Bird migration				
	Characteristics of some trees in my neighborhood				
	How things in the out-of-doors change in autumn				
	How things in the out-of-door change in spring				
	Habitat requirements of animals				
	Beneficial animals that are often destroyed by man-caused habitat changes				
	Soil, our basic resource				
	Forests and flood control				
	Missouri woods and their uses				
	How Missourians take care of and use their resources				
	The fur trade and the West				
	The fur trade today				
	Economic and environmental benefits of energy conservation				
	Economic and environmental benefits of recycling				
	Wildlife presence in my neighborhood				
	Environmental problems in neighborhood or state				
40. A.—	Participate in a school program observing National Wildlife Week.....	50	___	_____	_____
41. A.—	Write a letter to the editor of the local newspaper, school newspaper or magazine concerning a current conservation topic.....	150	___	_____	_____

	Points Possible	Points Earned	Date Completed	Leader Approval
42. A.— Assist in the design of an outdoor classroom for your school grounds	100	___	_____	_____
43. A.— Establish a wildlife food plot in an outdoor classroom	200	___	_____	_____
44. A.— Assist in providing permanent food, cover and water for wildlife in an outdoor classroom	200	___	_____	_____
45. A.— For each year of assistance in caring for an outdoor classroom	50	___	_____	_____
46. A.— Cooperate with the local Missouri Department of Conservation personnel on a survey (not enforcement)	500	___	_____	_____
A survey on one of the following topics is suggested: 1. A daily check list of wildlife species observed during a 90-day period; 2. Game animals taken during the current hunting or trapping season by members of your class; 3. Wildlife species observed in a city park or outdoor classroom during a 30-day period; 4. Number of farmers that permit hunting in your community; 5. Species and numbers of fish caught by members of your class during one summer; 6. The types of forest products produced or used by your community; 7. Number of people living living in your community that use the outdoors for recreation; 8. The types of outdoor recreation enjoyed by people in your community.				
47. A.— Provide bird houses. For each house occupied by nesting birds (except house sparrows and starlings)	100	___	_____	_____
48. A.— Provide and install squirrel den boxes in accordance with instructions from the Missouri Department of Conservation. For each box provided	200	___	_____	_____

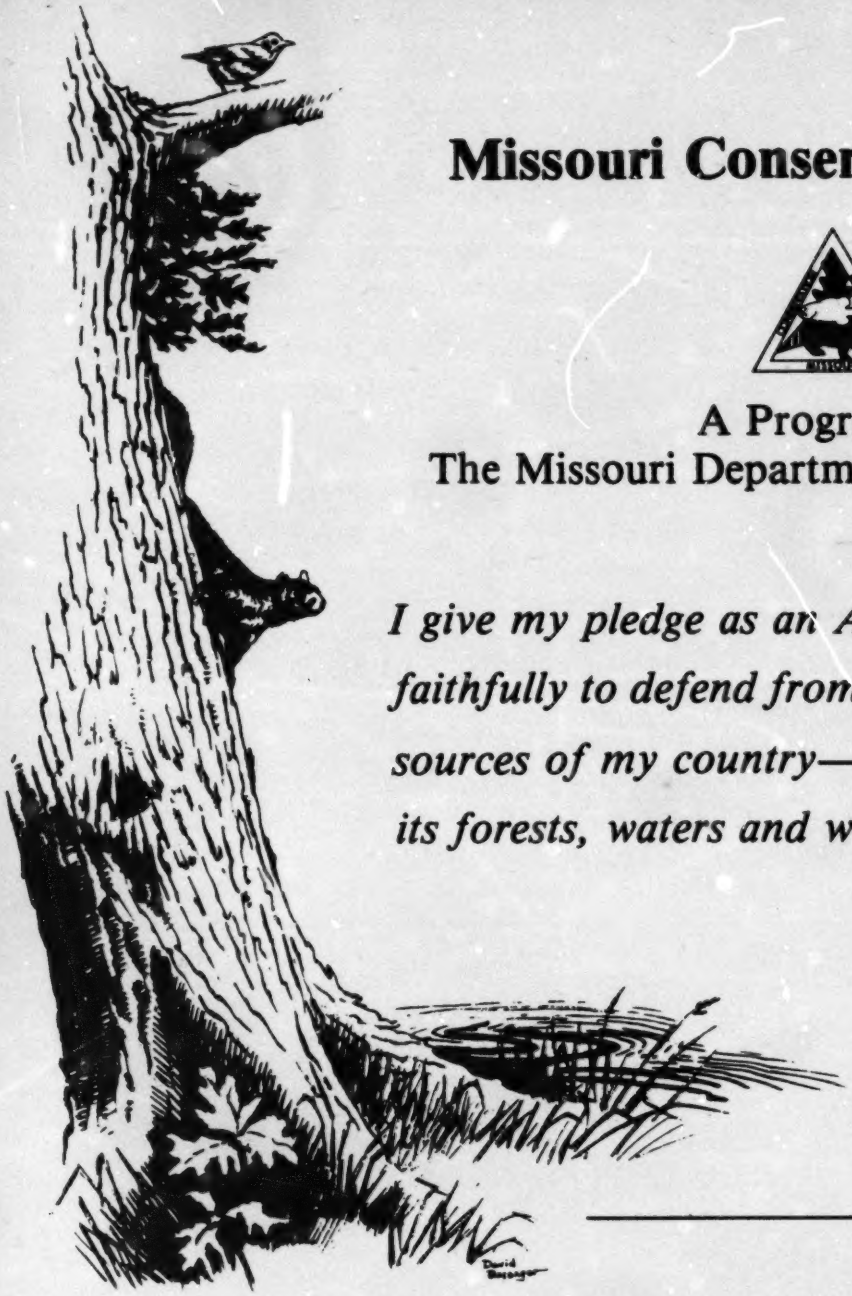
	Points Possible	Points Earned	Date Completed	Leader Approval
49. A.— Provide and install wood duck nesting boxes in accordance with instructions from the Missouri Department of Conservation. For each box installed	300	___	_____	_____
50. A.— Build bird houses, feeders or nesting boxes for organizations that can use them—nursing homes, hospitals, day care centers, etc. For each item donated (maximum 500 points approved for each level of achievement)	50	___	_____	_____
51. A.— With your parents, design and implement a landscape plan for your yard or other parcel of land that would benefit wildlife	500	___	_____	_____
52. A.— Establish a wildlife area of at least one acre in size. The area must include at least 100 seedlings beneficial to wildlife, a water supply and one food plot as recommended by the Missouri Department of Conservation	2000	___	_____	_____
53. A.— Make conservation posters and exhibit them at a school function or in local store windows. For each poster exhibited (maximum 500 points approved for each level of achievement)	50	___	_____	_____
54. A.— Plant and maintain a butterfly garden. Identify and list the types that are attracted. For each year maintained	100	___	_____	_____
55. A.— Install and maintain a bird feeding station. Record daily the types of birds visiting the feeder. For each week maintained	25	___	_____	_____
56. A.— Plant a permanent living border inside an existing fence line with seed and berry producing shrubs such as autumn olive. For each 100 plants	200	___	_____	_____
For each year plants cared for	100	___	_____	_____

	Points Possible	Points Earned	Date Completed	Leader Approval
57. A.— Develop a newly constructed and fenced pond for fish and wildlife. This project will require fertilizing, seeding and mulching to prevent erosion and planting trees and shrubs for wildlife food and cover. Fish for an approved pond are available free of charge from the Missouri Department of Conservation.....	2000	___	_____	_____
58. A.— Conduct a nature walk sharing natural history and conservation information with a group such as school, nursing home, hospital, etc.....	200	___	_____	_____
59. A.— Plant trees for a reforestation project. Trees are available from the Missouri Department of Conservation. For each 100 trees.....	200	___	_____	_____
60. A.— Plant wildlife food and cover producing trees and shrubs in clumps of five on rough, unpastured land, along a creek or fence, at the edge of wooded areas or near marshes and ponds. Credit per clump.....	25	___	_____	_____
61. A.— Conduct a recycling program to recycle reusable natural resources. Collect at least 100 pounds of aluminum, three tons of newspaper, or 500 pounds of glass. For each project.....	2,000	___	_____	_____
62. A.— Write a conservation article or draw a conservation cartoon for a newspaper. For each item published.....	250	___	_____	_____
63. A.— Control soil erosion on a farm, outdoor classroom, housing development, or other problem area by planting trees, shrubs, or grass, or by establishing another practice recommended by the Soil Conservation Service. For each area controlled.....	200	___	_____	_____

	Points Possible	Points Earned	Date Completed	Leader Approval
64. A.— Using proper outdoor ethics, legal methods, and rules of hunter safety, harvest, field dress and care for, cook and eat a Missouri game animal. While you may have assistance from a knowledgeable adult, you are responsible for the majority of the work from harvest to table. The proper harvest and use of our renewable resources is good resource management. For each different species (maximum 5 animals)	200	___	_____	_____
65. A.— Using proper outdoor ethics and legal methods, harvest, dress, cook and eat a Missouri fish. You may have assistance from a knowledgeable adult, but you are responsible for the majority of the work from harvest to table. Conservation includes the proper harvest and use of our renewable resources. For each different species (maximum 5 fish)	200	___	_____	_____
66. A.— Start a conservation museum at your school. The museum may include samples of wildlife foods, leaf and twig collections, photographs, drawings, posters, charts, models, wildlife pictures, wood samples, etc. For each specimen added	20	___	_____	_____
67. A.— Provide a conservation exhibit for parents or public. The exhibit may be in connection with Arbor Day, National Wildlife Week, National Hunting and Fishing Day, Parent-Teacher Meeting, Bird Day, etc. For each member participating	200	___	_____	_____
68. A.— Plant, mulch and care for a windbreak using trees and shrubs recommended by the Missouri Department of Conservation. The windbreak providing wildlife food and cover and protection from the wind may be on a farm, schoolyard, or housing development. Points per windbreak	1,000	___	_____	_____
Care for windbreak per year	100	___	_____	_____

	Points Possible	Points Earned	Date Completed	Leader Approval
69. A.— Establish wildlife cover by building brush piles for rabbits, quail and other small game animals on a farm or outdoor classroom. For each 6 ft. brush pile	50	___	_____	_____
70. A.— Take photographs of Conservation Frontiers projects, wildlife, or environmental problems that exist in your neighborhood. For each different subject (maximum 25 photographs)	20	___	_____	_____
71. A.— Participate in the Missouri Department of Conservation P.A.W.S. (Planning Ahead for Wildlife Survival) Program by planting and caring for annual wildlife food plots. For each plot established	250	___	_____	_____
72. A.— Participate in a program observing National Hunting and Fishing Day	50	___	_____	_____
73. A.— Using proper outdoor ethics and legal methods, harvest a Missouri furbearing animal and tan or preserve the hide. You may have assistance from a knowledgeable adult, but you are responsible for the majority of the work from harvest to completed pelt. For each different species (maximum 5 mammals)	200	___	_____	_____

Note: When a single activity has been performed by a group, the points should be divided equitably among the participants.



Missouri Conservation Frontiers

A Program of
The Missouri Department of Conservation

I give my pledge as an American to save and faithfully to defend from waste the natural resources of my country—its soil and minerals, its forests, waters and wildlife.

_____

Signature

The Missouri Department of Conservation takes pleasure in presenting this certificate and Identification Card to you as a participant in the Missouri Conservation Frontiers Program.

Missouri Conservation Frontiers

This is to certify that

_____

is a Pioneer in the Missouri Conservation Frontiers program

Larry R. Gale

Director
Missouri Department of Conservation